

## 21.

*Deltokeras multilobatus*, a New Species of Cestode (Parauteriniinae : Dilepiidae) from the Twelve-wired Bird of Paradise (*Seleucides m. melanoleucus* (Daudin). : Passeriformes).<sup>1,2</sup>

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(Plate I).

A collection of cestodes obtained from a twelve-wired bird of paradise that had died at the New York Zoological Park was submitted to the author for study through the courtesy of Dr. Carlton M. Herman. The vial contained a large number of specimens, totaling about one hundred in all, approximately half of which are *Hymenolepis brevicirrosa* Fuhrmann, 1912, and the remainder an undescribed species of the genus *Deltokeras* Meggitt, 1927. The name *Deltokeras multilobatus* n. sp. is proposed, being suggested by the many-lobed condition of the ovary.

***Deltokeras multilobatus* n. sp.**

*Description:* Strobilae up to 45 mm. long, proglottides nearly as thick as long, width of mature segments 470-525  $\mu$ , length 292-324  $\mu$ , thickness 243  $\mu$  in posterior part; ripe segments 616-696  $\mu$  wide by 393-486  $\mu$  long. Scolex rounded, diameter 243-324  $\mu$ , length 243-324  $\mu$ ; rostellum short, its length, 64-99  $\mu$ , about equal to its width, 72-91  $\mu$ , dome shaped with truncated part directed cephalad; because of their caducous nature only two rostellar hooks remained, length 17-19  $\mu$ , ventral root short and with very broad base, its distal extremity provided with a large knob that is bisected, dorsal root with or without terminal knob. Suckers approximately circular, 87-102  $\mu$  wide by 80-91  $\mu$  long, located laterally near equator of scolex, unarmed. Neck distinct, length 508-1060  $\mu$ , width at base of scolex 146-190  $\mu$ . Dorsal excretory canals small, about 4  $\mu$  in diameter, ventral canals large, about 27  $\mu$  in diameter, located immediately mesad from nerve cords, transverse canal in caudal part of segment. Genital pores unilateral, very small, 12  $\mu$  in diameter, located near middle of lateral margin of proglottid. Genital ducts pass between excretory canals and dorsal to nerve cords. Cirrus pouches long and slender, extending antero-mesad to a point beyond excretory canals, length 121-133  $\mu$ , width 19-23  $\mu$ ; cirrus very slender, diameter 3  $\mu$ , aspinose; cirrus and that portion of vas deferens within pouch looped; internal and external seminal vesicles absent; vas deferens forms a number of loops in anterior portion of proglottid before passing caudad over dorsal surface of ovary; testes posterior and lateral to ovary, 12-16 in number, diameter about 34  $\mu$ , both testes and ovary persist until uterus is well filled with immature ova. Vaginal

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opening caudad from male pore, vagina extends as a thin tube parallel with and on caudal side of cirrus pouch to beyond excretory canals where it bends meso-caudad, increasing greatly in diameter to form an elongated seminal receptacle that lies dorsal to ovary. Ovary located centrally in proglottid, multilobated, there being 8-9 pedunculated lobes filling greater portion of space between longitudinal excretory canals. Vitelline gland at caudal margin of ovary, oval, 61-76  $\mu$  long by 38  $\mu$  wide. Uterus with lobes, the interior being divided into compartments by extensions of the wall, fills entire intercanalular space; parauterine organ very poorly developed, being represented by a very meager amount of tissue spread evenly over entire surface of uterine wall. Ova few, with three membranes, 53-57  $\mu$  long by 30  $\mu$  wide (sectioned specimens), embryos 30-31  $\mu$  long by 23-27  $\mu$  wide, hooks of embryo 13  $\mu$  long. Ova not encapsulated in uterine cavity.

*Host*: *Seleucidides melanoleucus melanoleucus* (Daudin).

*Habitat*: Intestine.

*Locality*: New York Zoological Park.

*Cotypes*: U. S. Nat. Mus. Helm. Coll. No. 9291, others in Univ. Minn. Helm. Coll., New York Zool. Soc. Coll. and of author.

#### DISCUSSION.

*Deltokeras multilobatus* n. sp. may be recognized by the characteristic lobation of the ovary, the lobes being on long pedunculated stalks. The ovary of *D. ornitheios* Meggitt, 1927, is sac-like and at most only slightly lobed; *D. delachauxi* Hsü, 1935, is strongly bilobed. In the case of *D. campylometra* Joyeux, Gendre & Baer, 1928, the description of the female glands is dismissed with the statement that they "ne présentent pas de particularités," which is taken to indicate that they are similar to those of *D. ornitheios*. The size and shape of the rostellar hooks serve to further differentiate the four species. In *D. ornitheios*, they are the largest, being 27-31  $\mu$  long, and most similar in shape to *D. multilobatus*, while in both *D. campylometra* and *D. delachauxi* they are smaller than in *D. multilobatus*, being 10-15  $\mu$  and 14-15  $\mu$  long, respectively, as compared to 17-19  $\mu$  long as in the case of the latter, as well as being very different in shape (cf. Figs. 2, 4, 6 and 7).

Meggitt (1927) stated that while the species of *Biuterina* have a parauterine organ *D. ornitheios* does not, nor does the uterine wall show any of the characteristic fibrinous structure of that organ. Joyeux et al (1928) for *D. campylometra* and later Hsü (1935) for *D. delachauxi* reported a definite thickening of tissue surrounding the uterus and pointed out that it is a form of the parauterine organ. Hsü believed the presence of the parauterine organ a characteristic of the genus and emended the generic concept accordingly. These authors are of the opinion that the specimens of *D. ornitheios* were too young to show the parauterine organ although Meggitt stated that while the oldest proglottides were not gravid "the most fully developed segment showed a lobed sac filled with eggs, occupying the former position of the ovary and extending to the anterior margin of the proglottis." In considering the opinion of these authors in their belief that the specimens of *D. ornitheios* were too immature to show the parauterine organ, it is interesting to note that Joyeux et al found their specimens "ne sont pas assez mur pour nos permettre d'observer l'organe complètement développé;" even so it is figured as being very conspicuous and Hsü figured a sexually mature proglottid, not gravid, in which the organ is sufficiently well developed to be quite as obvious as the ovary and equal to it in size. This leads to the opinion that even though Meggitt's specimens were not fully gravid they were undoubtedly sufficiently developed to show at least some indications of the presence of a parauterine organ, if it were to develop at all. The case of *D. multilobatus* appears to be intermediate between *D. ornitheios*, as described by Meggitt, on the one hand, and *D. campylometra* and *D. delachauxi* on the other. Here the parauterine

tissue is present in fully gravid segments but very sparingly as shown in sections, and furthermore, it is evenly dispersed over the entire uterus. This condition appears to be analogous to that which Joyeux et al noted for species having a parauterine organ which has not reached its full development.

In view of the above discussion on the parauterine organ in *Deltokeras*, it is suggested that possibly here is a group of cestodes that represents a transitional stage between those genera having no parauterine organ and *Biuterina* and related genera having a well developed and specialized one.

The species may be differentiated by means of the following key.

Key to the species of *Deltokeras*.

1. Genital pores irregularly alternate; rostellar hooks 14-15  $\mu$  long; 15-17 testes; ovary bilobed.

*Deltokeras delachauxi* Hsü, 1935

Genital pores unilateral ..... 2

2. Ovary with 8-9 long pedunculated lobes; hooks 17-19  $\mu$  long; 12-16 testes.

*Deltokeras multilobatus* n. sp.

Ovary not with long pedunculated lobes but sac-shaped ..... 3

3. Hooks 27-31  $\mu$  long, 80 in number, dorsal root longer than ventral root or blade, knob on dorsal or ventral roots relatively small in comparison to size of hook.

*Deltokeras ornitheios* Meggitt, 1927

Hooks 10-15  $\mu$  long, 46 in number, dorsal and ventral roots of equal length and with knobs which are extremely large in comparison to size of hook.

*Deltokeras campylometra* Joyeux, Gendre and Baer, 1928

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## EXPLANATION OF THE PLATE.

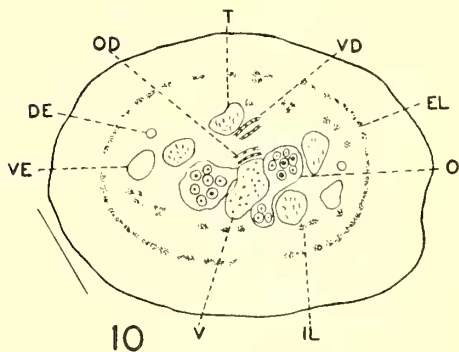
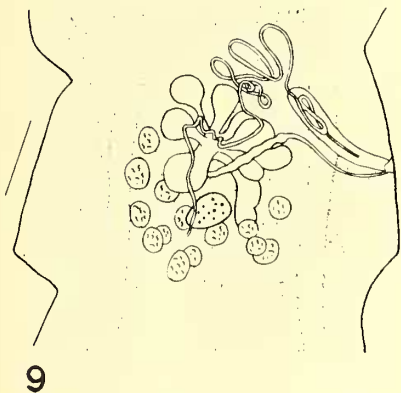
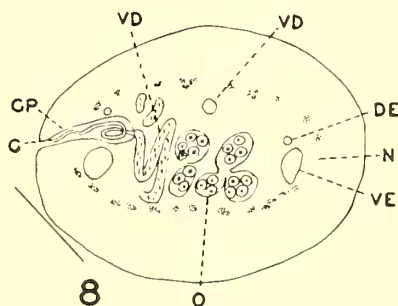
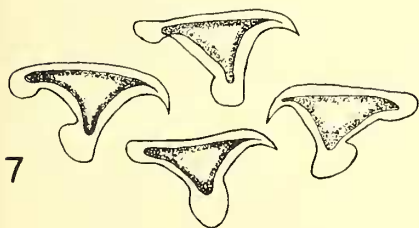
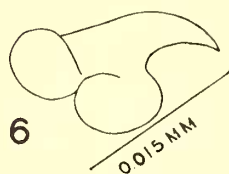
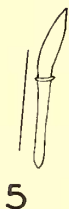
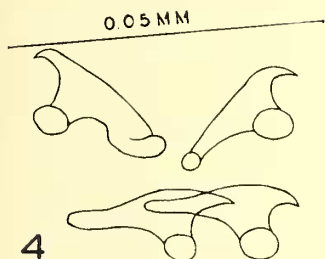
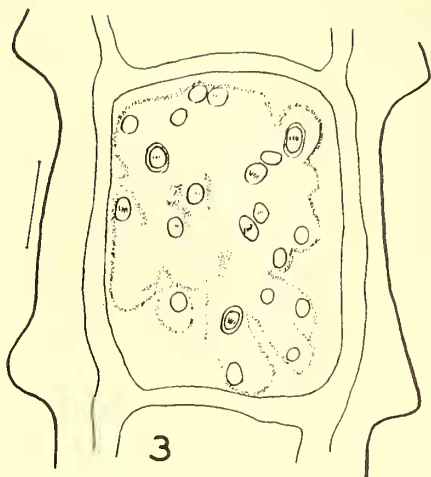
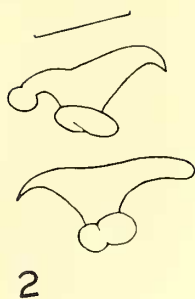
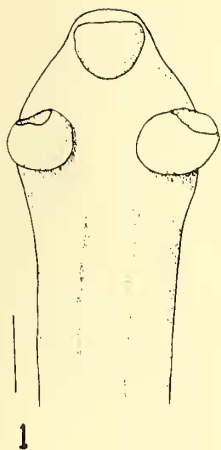
## PLATE I.

All drawings made with the aid of a camera lucida. Scale of enlargement 0.1 mm. except in Figs. 2 and 5, where it is 0.01 mm. or as otherwise noted.

- Fig. 1. Scolex of *Deltokeras multilobatus*.  
 Fig. 2. Rostellar hooks of *D. multilobatus*.  
 Fig. 3. Frontal section of gravid proglottid showing uterus with parauterine tissue. Partly reconstructed.  
 Fig. 4. Hooks of *D. ornitheios*. After Meggitt, 1927.  
 Fig. 5. Hook from intrauterine embryo of *D. multilobatus*.  
 Fig. 6. Hook of *D. campylometra*. After Joyeux, Gendre & Baer, 1928.  
 Fig. 7. Hooks of *D. delachauxi*. After Hsü, 1935.  
 Fig. 8. Cross-section through anterior portion of mature segment.  
 Fig. 9. Mature segment showing reproductive glands.  
 Fig. 10. Cross-section taken near middle of same segment as in Fig. 8.

## Key to abbreviations.

C	cirrus
CP	cirrus pouch
DE	dorsal excretory canal
EL	external longitudinal muscle
IL	internal longitudinal muscles
N	nerve
O	ovary
OD	oviduct
T	testes
V	vitelline gland
VD	vas deferens
VE	ventral excretory canal



DELTOKERAS MULTILOBATUS, A NEW SPECIES OF CESTODE FROM THE TWELVE-WIRED BIRD OF PARADISE, SELEUCIDES M. MELANOLEUCUS (DAUDIN).